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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/787,375	02/27/2004	Yuriko Kaida	249262US0CONT	7968

22850 7590 04/22/2005

OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C.  
1940 DUKE STREET  
ALEXANDRIA, VA 22314

EXAMINER
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SADULA, JENNIFER R

ART UNIT	PAPER NUMBER
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1756

DATE MAILED: 04/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/787,375

Applicant(s)

KAIDA ET AL.

Examiner

Jennifer R. Sadula

Art Unit

1756

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on the RCE and amendment filed 3/28/05.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 5-13 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 5-13 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 3/16/05.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

**DETAILED ACTION*****Information Disclosure Statement***

The references cited in IDS of 3/16/05 have been considered.

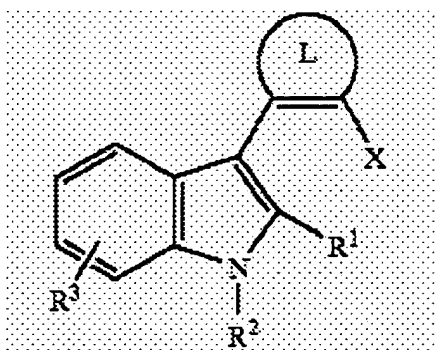
***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

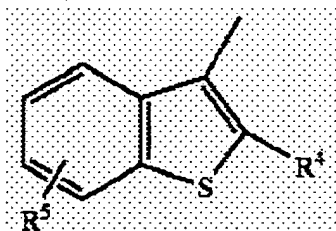
A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

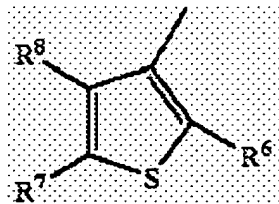
Applicant claims an optical recording material comprising a side chain liquid crystal polymer (LCP) which contains a photochromic diarylethene compound:



wherein the X groups are either:



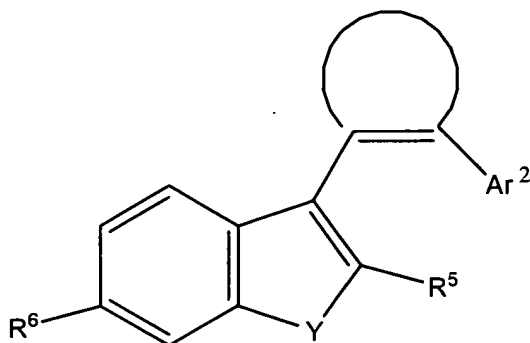
or



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Claim 5 is rejected under 35 U.S.C. 102(e) as being fully anticipated by Kim et al., U.S. Patent No 6,787,621 ("Kim").

Kim teaches the following compound:



wherein the ring at the top is formed from the joining Z groups of formula 1 and the Ar<sub>2</sub> is substituted with the heterocyclic compounds shown which can be thio-substituted thereby rendering the Applicants' claimed composition anticipated (1:15-45). Y can be NH or N-CH<sub>3</sub> thereby anticipating when Applicants compound R<sub>2</sub> is hydrogen or an alkyl group. R<sub>6</sub> of Kim anticipates Applicants' R<sub>3</sub> and R<sub>5</sub>. R<sub>5</sub> of Kim anticipates Applicants' R<sub>1</sub> and R<sub>4</sub>. The diarylethene monomers are introduced into the polymer chain for side-chain liquid crystalline compositions (1:8-16, 1:45-2:25).

However, Kim does not teach the specific alignment of uniaxially orienting the material for use as an optical recording media.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 6-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Morikawa et al., U.S. Patent No 5,644,416 ("Morikawa") in view of Kim, as applied above.

Morikawa teaches a light modulation compositions and erasable optical memory materials comprising a high polymeric LCP film comprising a uniaxially oriented side chain type LCP containing a photochromic compound (abstract) wherein the copolymerizable photochromic monomer is a diarylethene polymerizable derivative (6:60-67). Morikawa does not exemplify the specific diarylethene photochromic material.

Kim teaches the compound and composition as detailed above and notes its use for side chain LCP films for use in optical recording media.

It would therefore have been obvious to one of ordinary skill in the art at the time of invention to use the diarylethene photochromic compounds of Kim in the devices of Morikawa with a reasonable expectation of forming an erasable optical memory material having superior light modulation characteristic and non-destructive and repeated write/reproduce memory (Morikawa, 2:59-3:11).

Examiner notes that with regard to Applicants' claim 8 Morikawa teaches that the information is irradiation read/write (abstract). With regard to Applicants' claims 9-13 this irradiation is performed to modulate light in the wavelength region in which the photochromic compound has not absorption by making use of a change in the refractive index anisotropy of the LCP film which has been caused by photoisomerization of the photochromic compound (abstract). As noted in the examples and column 10, lines 29-35 of Morikawa, the LCP has a glass transition temperature (T<sub>g</sub>) of not higher than 50°C wherein the measuring temperature for figure 4 was at 25°C.

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***Conclusion***

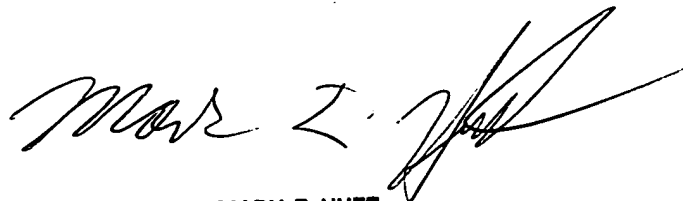
The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. With regard to Tachibana (previously mislabeled "Shinichi") and Horikawa (previously mislabeled "Yukio et al"), examiner notes that formula II contains too many substituents and such modification would not be obvious.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer R. Sadula whose telephone number is 571.272.1391. The examiner can normally be reached on Monday through Friday, 10am-6pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark F. Huff can be reached on 571.272.1385. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JRS  
4/15/05



MARK F. HUFF  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 1700